

OIL, GAS AND CHEMICALS

## ABB WiMon

# Enable wireless condition monitoring of rotating machines



The ABB WiMon wireless condition monitoring system tracks vibration and temperature data to enable condition-based maintenance of motors, fans, pumps and other rotating machines. It eliminates the need for manual data collection and enables equipment located in difficult-to-reach or dangerous areas to be monitored.

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01 ABB WiMon wirelessly monitors and collects vibration and temperature data of motors, fans, pumps and other rotating equipment to enable condition-based maintenance.

### Overview

The ABB WiMon wireless condition monitoring system is the enabler of condition-based maintenance for most types of rotating machines, and is suitable for difficult and hazardous environments. The system comprises a vibration sensor, a temperature sensor, a long-lasting battery, mesh grid WirelessHART™ infrastructure and monitoring software.

Operators can quickly install and easily configure the system, allowing for data collection and monitoring to begin almost immediately. One sensor is enough to turn any rotating machine into an intelligent asset connected to the ABB Ability™ infrastructure.

The WiMon sensor offers a battery life of at least five years and can reduce the maintenance costs as well as extend the operation time of rotating equipment.

WiMon includes a robust and redundant meshed wireless network to prevent signal interruption. It will automatically switch to alternate pathways if data transmission is disrupted.

### Benefits

- Reduces opex costs by eliminating the need for manual retrieval of temperature and vibration data
- Reduces capex costs compared to traditional wired solutions
- Enables monitoring of equipment in difficult-to-reach or dangerous areas
- Reduces maintenance of sensors with extended battery life and protection against water, temperature fluctuations and explosive gases
- Determines the right time for maintenance or pro-active equipment replacement
- Ensures compliance with ISO 10816 guidelines
- Optimizes user experience with easy-to-use system for data collection, storage and analysis



Specifications				
<b>Temperature measurement</b>				
Measurement range	-40°C to 85°C			
Resolution	0.1°C			
Accuracy	+/- 2°C			
Repeatability	+/- 0.2°C			
<b>Vibration measurements (overall values)</b>				
<b>Velocity</b>				
Amplitude range	0.2 to 350mm/s (10Hz)			
Frequency range	10Hz to 1kHz			
Detection type	RMS			
<b>SKF Acceleration Enveloping Filter 3:</b>				
Amplitude range	0.25 to 245 m/s <sup>2</sup>			
Frequency range	500Hz to 10kHz			
Detection type	Peak to peak			
<b>Data processing</b>				
A/D conversion	16 bit			
Sampling frequency	5.859kS/s			
Sampling interval	0.7s			
Uploaded waveform resolution	2048 samples / 0.7s			
<b>Wireless communication</b>				
Network standard	WirelessHART (HART 7.4)			
Radio standard	IEEE 802.15.4			
Frequency	2.4 GHz, License Free ISM Band			
Range (nominal)	>50m @ line of sight			
<b>Power</b>				
Battery type				
Estimated battery lifetime	Up to five-year battery life, depending on temperature, settings and usage; see below:			
<b>Operating temperature °C</b>	-40° to 20°	-20° to 0°	0° to 40°	40° to 70°
<b>Estimated battery life in years</b>	3	4	5	3
Note 1:	Default sensor configuration: Vibration measurements (velocity and acceleration enveloping) collected every hour with static data (overall values) uploaded once per hour and a single set of time waveforms uploaded once per 24 hours. Temperature measurement collected every five minutes with all measurements uploaded once per hour. Sensor operating as a leaf node (not routing).			
Note 2:	Continuous operation in the 70° to 85°C temperature range is not recommended as it will dramatically shorten battery life.			
Note 3:	Operating a sensor in router mode will increase energy consumption and reduce its battery life, the extent of which depends on the number of neighboring nodes and amount of data being routed.			
<b>Environmental</b>				
Temperature	Operation: -40°C to 85°C Storage: 30°C maximum			
IP class	IP66 (dust-tight and resistant to powerful water jetting)			
<b>Certifications</b>				
EX (Hazardous areas)	ATEX Zone 0 Ex ia IIC T4 -40°C/85°C			
Radio	ETSI EN 300 328 v.1.8.1 EN 301 489-1 v.1.9.2 EN 301 489-17 v.2.2.1			
<b>Physical</b>				
Weight	0.2 kg			
Case material	Stainless steel / thermoplastic			
Mounting	1/4 28 UNF tapped hole Preferably stud mounted, mounting torque 5Nm			
Dimensions	100 x 36 mm			

### Why choose ABB

- WiMon sensors can be easily installed on both ABB motors and third-party rotating machines
- We offer one of the few sensors certified for operation in ATEX Zone 0
- Our solution offers a mesh grid capability that ensures pervasive coverage on every type of industrial floor, including the busiest of chemical sites
- We offer four different mounting types to accommodate a range of rotating machines
- Our expertise, combined with more than 100 years of experience in the field of rotating machines, has been incorporated into WiMon technology to deliver an industry-leading solution
- We offer a full range of services to support your plant, including:
  - Product commissioning
  - Maintenance and field services
  - Repairs
  - Spare parts services
  - Training
  - Analysis services

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